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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,927	01/24/2002	Brian S. Medower		4017

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MACPHERSON KWOK CHEN & HEID LLP
2033 GATEWAY PLACE
SUITE 400
SAN JOSE, CA 95110

EXAMINER	
MAYES, MELVIN C	
ART UNIT	PAPER NUMBER
1734	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/056,927	MEDOWER ET AL.	
	Examiner	Art Unit	
	Melvin Curtis Mayes	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 13-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

(1)

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(2)

Claims 1-4, 6-11 and 13-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2001/0016301 in view of Pan et al. 4,960,680 and JP 3-86943.

Edwards discloses a method of making optical disk from a master comprising: providing a glass master substrate; depositing a photosensitive material (photoresist) on the substrate; exposing the material to laser on a recording table and developing (etching) the photosensitive material to form grooves; forming a first stamper from the master disk; forming a second stamper from the first stamper; and forming replica disk from the second stamper by molding. The deposited photosensitive material and formed grooves may have a depth typically of between 50 and 120 nm. The replica disk may be optical data disk which include data pits, grooves, bumps or ridges and land or land areas and of various types of recordable optical disk such as phase change disk formats and has wide, flat smooth lands for positioning user recorded data thereon. Edwards discloses that the father stamper (first stamper) can be made from the master disk by electroforming using a nickel bath and a mother stamper (second stamper) can be made from the father stamper by electroforming using a nickel bath [0001]-[0075]. Edwards does not specifically disclose using the mother stamper (second stamper) to make a first surface optical disk of plastic material, deposited phase-change material and deposited dielectric layer over the phase change material and consisting of no further layers.

Pan et al. teach that a write-once recordable optical element can comprise a substrate such as of polycarbonate, optical recording layer of SbInSn alloy and protective overcoat layer on the optical recording layer (col. 2-6).

JP 3-86943 (JP '943) teaches that optical recording medium is provided with high mechanical strength and peeling and cracking prevented by providing, on at least one surface of the recording layer, a protective film of silicon oxynitride. JP '943 teaches for a recording layer of thickness of 80 nm, a protective layer of silicon oxynitride of thickness 80 nm is provided (Abstract and consultation with translator).

It would have been obvious to one of ordinary skill in the art to have modified the method of Edwards for making an optical disk such as recordable optical disk of phase change disk format by forming the disk by depositing phase-change material of SbInSn alloy directly on a molded polycarbonate replica disk, as Pan et al. teach that a recordable optical disk can be made of an injection molded polycarbonate substrate on which is directly deposited a recording layer of SbInSn alloy. Depositing a dielectric layer of silicon oxynitride on the SbInSn alloy phase-change material would have been obvious to one of ordinary skill in the art, as Pan et al. teach that a coating of wear resistant material, anti-reflective dielectric overcoat or protective overcoat is provided on the phase-change alloy, and JP '943 teaches that silicon oxynitride can be provided on the recording layer of optical recording medium to provide high mechanical strength and reduced peeling and cracking or to provide a protective layer. The use of silicon oxynitride as a wear resistant material, dielectric protective overcoat on the SbInSn alloy phase-change material on the polycarbonate substrate would have been obvious to one of ordinary skill in the art, as taught by JP '943.

Providing the silicon oxynitride protective dielectric layer of thickness of 80 nm would have been obvious to one of ordinary skill in the art, as taught by JP '943, as thickness of protective silicon oxynitride provided on a recording layer of thickness 80 nm. By providing a silicon oxynitride protective dielectric layer of thickness of 80 nm on a phase change material layer of similar thickness, a dielectric layer is obviously deposited having a thickness that enhances an optical phase difference between first and second states of the phase-change material. As set forth by Figure 11 of the present specification, any thickness of protective dielectric layer up to 125 nm provides change in optical phase between the two states of the phase change material that is greater than the change in optical phase when no dielectric layer is provided. Thus the thickness suggested by JP '943 provides a protective dielectric layer that obviously results in a greater change in optical phase between the two states of the phase change material compared to no dielectric layer provided.

(3)

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2001/0016301 in view of Pan et al. 4,960,680 and JP 3-86943 as applied to claim 4, and further in view of Dobbin RE 34,506.

Dobbin teaches that for manufacturing an optical disc master, an alternative to the photoresist mastering system involves the use of a material which undergoes ablation when exposed to laser, the advantages over the photoresist process including reduction in process steps such as curing (exposing) and developing (etching) which results in less costly procedure and shorter completion time (Col. 2, lines 23-50).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined for making a first surface optical disk by providing the master with grooves using a photoresist material which undergoes laser ablation instead of using a photoresist material which undergoes exposing and etching, as taught by Dobbin, to reduce process steps which results in less costly procedure and shorter completion time. The use of photoresist material which undergoes laser ablation would have been obvious to one of ordinary skill in the art as an alternative to a photoresist which undergoes laser exposing and etching to form a master with less process steps, as taught by Dobbin.

Response to Arguments

(4)

Applicant's arguments filed October 16, 2006 have been fully considered but they are not persuasive.

Applicant argues that Pan is directed to a second surface optical disk having a thick defocusing layer on the phase-change material and argues that JP '943 is directed to different form of disk and the dielectric coating is merely protective and has no contrast enhancing effect.

(5)

Working Example 1 of JP 3-86943 teaches for a recording layer of thickness of 80 nm, a protective layer of silicon oxynitride of thickness 80 nm is provided. A translation of the entire document will be provided when available.

The Pan et al and JP '943 are not limited as argued. Pan et al. clearly teach that a write-once recordable optical element can comprise a substrate such as of polycarbonate, optical

recording layer of SbInSn alloy and protective overcoat layer on the optical recording layer, only three layers, and thus a first-surface optical disk. There is no mention of a thick defocusing layer, as argued. JP 3-86943 (JP '943) teaches that an optical recording medium can be provided with a protective silicon oxynitride film on only one surface of the recording layer. With respect the protective silicon oxynitride film also enhancing optical phase difference, according to Figure 11 of the present specification, any thickness of protective dielectric layer up to 125 nm provides change in optical phase between the two states of the phase change material that is greater than the change in optical phase when no dielectric layer is provided. Thus any thickness of protective silicon oxynitride film up to a thickness of 125 nm provides enhanced optical phase difference as compared to no protective film being present.

Conclusion

(6)

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

(7)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Curtis Mayes whose telephone number is 571-272-1234. The examiner can normally be reached on Mon-Fri 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on 571-272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Melvin Curtis Mayes
Primary Examiner
Art Unit 1734

MCM
January 3, 2007